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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

OH, TAYLOR V

ART UNIT	PAPER NUMBER
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1625

DATE MAILED: 07/16/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/870,483

Applicant(s)

OKUDA ET AL.

Examiner

Taylor Victor Oh

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 17 April 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 7-9, 11 and 13-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-9, 11, 13-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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1. Applicant's arguments with respect to claims 1-3, 7-9, 11, 13-19 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

2. Claim 1 and 2 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a hydrocarbon solvent, such as chain hydrocarbons containing 5 to 16 carbons, such as 2-methylpentane and 3-methylpentane, saturated monocyclic hydrocarbons containing 6 to 16 carbon atoms, such as methylcyclopentane and methylcyclohexane, and aromatic hydrocarbons such as benzene, toluene, trimethylbenzene, o-xylene, m-xylene or an isomeric mixture of xylene, does not reasonably provide enablement for all the hydrocarbon solvents. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to include all the hydrocarbon solvents unrelated to the invention commensurate in scope with these claims. The invention is enabled for some of the hydrocarbon solvents such as chain hydrocarbons containing 5 to 16 carbons, such as 2-methylpentane and 3-methylpentane, saturated monocyclic hydrocarbons containing 6 to 16 carbon atoms, such as methylcyclopentane and methylcyclohexane, and aromatic hydrocarbons such as benzene, toluene, trimethylbenzene, o-xylene, m-xylene or an isomeric mixture of xylene, not all the hydrocarbon solvents. Therefore, an appropriate correction is required.

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***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 8-9, and 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated clearly by Shino et al. (US. 4,694,090).

Shino et al disclose a process of making  $\alpha$ -hydroxycarboxylic acid by hydrolyzing a cyanohydrin in the presence of a mineral acid such as hydrochloric acid and a high boiling alcohol such as glycerol, ethylene glycol ( see col. 6 , lines 1-11) at room temperature or under heating; furthermore, in the process, the cyanohydrin is formed by the reaction of an aldehyde with hydrogen cyanide. And as a result of the process, the  $\alpha$ -hydroxycarboxylic acid can be separated and recovered by the conventional method ( see col. 6 , lines 1-11). For example, water is added to the reaction mixture and then the whole mixture is extracted with diethyl ether and washed with water , dried; the solvent in the reaction mixture is distilled off , and the residue is then purified by recrystallization ( see col. 6 , lines 1-11), thereby obtaining the  $\alpha$ -hydroxycarboxylic acid. Concerning the production of the optically active  $\alpha$ -hydroxycarboxylic

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acid, the  $\alpha$ -hydroxycarboxylic acid is inherently an optically active compound due to the presence of chirality in the compound. These are identical with the claims.

***Claim Rejections - 35 USC § 103***

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 7 and 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shino et al. (US. 4,694,090).

Shino et al disclose a process of making  $\alpha$ -hydroxycarboxylic acid by hydrolyzing a cyanohydrin in the presence of a mineral acid such as hydrochloric acid or sodium hydroxide and a high boiling alcohol such as glycerol, ethylene glycol ( see col. 6 , lines 1-11) at room temperature or under heating; furthermore, in the process, the cyanohydrin is formed by the reaction of an aldehyde with hydrogen cyanide in the presence of or absence of methanol, benzene, and toluene ( see col. 6 , lines 37-39). And as a result of the process, the  $\alpha$ -hydroxycarboxylic acid can be separated and recovered by the conventional method ( see col. 6 , lines 1-11). For example, water is added to the reaction mixture and then the whole mixture is extracted with diethyl ether and washed with water , dried; the solvent in the reaction mixture is distilled off , and the residue is then purified by recrystallization ( see col. 6 , lines 1-11), thereby obtaining the  $\alpha$ -hydroxycarboxylic acid. Concerning the production of the optically active  $\alpha$ -hydroxycarboxylic acid, the  $\alpha$ -hydroxycarboxylic acid is inherently an optically active compound due to the presence of chirality in the compound.

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However, Shino et al differ from the instant invention in that at most 10 equivalents of mineral acid is used relative to the cyanohydrin.

With respect to the use of 10 equivalents of mineral acid relative to the cyanohydrin, the reference is silent. However, in the hydrolysis of hydantoin, 1-5 moles of sodium hydroxide are used per mole of hydantoin (see col. 4 , lines 33-35). Furthermore, Shino et al do teach that hydrochloric acid and sodium hydroxide are equivalent to each other in the hydrolysis. Therefore, if the person having an ordinary skill in the art had desired to investigate the optimum amount range of the mineral acid relative to the cyanohydrin, it would have been obvious to the skillful artisan in the art to have motivated to perform the routine experimentation on the amount of mineral acid use in comparison with the amount of sodium hydroxide in the hydrolysis of hydantoin as a referential basis, thereby obtaining the claimed range.

Therefore, if the person having an ordinary skill in the art had desired to optimize the reaction process by controlling the amount of the organic solvent and the amount of the mineral acid relative to the cyanohydrin, it would have been obvious to the skillful artisan in the art to have motivated to obtain that claimed amount of the mineral acid relative to the cyanohydrin as well as the optimum amount of the organic solvent from the routine experimentation .

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Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Flege et al (US. 4,218,380).

Flege et al disclose a 3-chloromandelic acid (see col. 3 , line 49).

The reference, however, differs from the instant invention in that a packing density is not not described.

Concerning the packing density of the compound , this is not related to the novelty of the instant invention, but rather is naturally obtained as a unique physical property for evaluating the compound. Therefore, it would have been obvious to the skillful artisan in the art to have motivated to obtain the claimed density of the compound as part of routinely evaluating physical characteristics for the known compound in the process of the storage.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Victor Oh whose telephone number is (703) 305-0809. The examiner can normally be reached on Monday through Friday from 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alan Rotman, can be reached on (703) 308-4698. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4556.

*7/12/12*

*Alan L. Rotman*

**ALAN L. ROTMAN**  
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